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Index to Emission Factor Testing Programs

(U.S.) Environmental Protection Agency
Ann Arbor, MI

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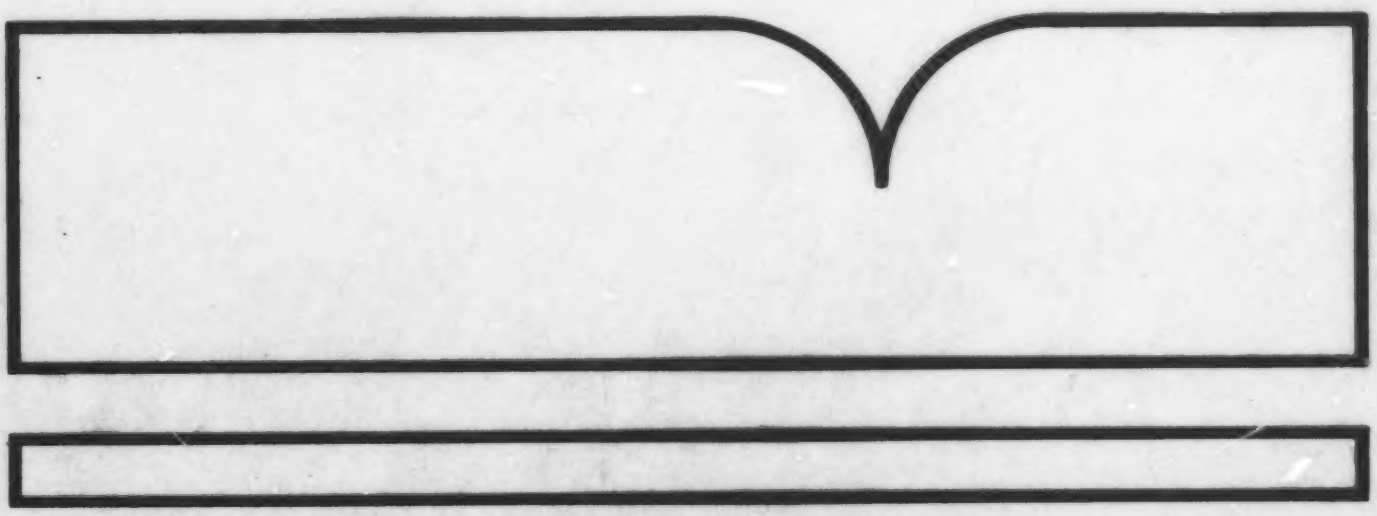

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"Index to Emission Factor Testing Programs"

Compiled by
Daniel J. Niemczak

October 1980

Test and Evaluation Branch
Emission Control Technology Division
Office of Mobile Source Air Pollution Control
U.S. Environmental Protection Agency

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This report provides a collection of narratives, listings and tables summarizing past, current and projected Emission Factors programs which are presently being conducted by the Test and Evaluation Branch of the Emission Control Technology Division.

The purpose of this document is to provide a general reference to available data, an overview of specifics in current programs, and a projection of upcoming projects. This information is intended to assist potential "customers" of the programs in their identification of possible areas of interface, spin-offs or piggyback efforts.

These programs involve emission testing of large numbers of in-use trucks, motorcycles and passenger cars at various locations throughout the country. EPA uses this information to calculate Emission Factors which are in turn used by state and local officials to project air quality and evaluate various pollution control strategies.

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Emission Factor Testing Programs

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Emission Factor Testing Program

Introduction

This report provides a collection of narratives, listings, and tables summarizing past, current and projected Emission Factors programs which are presently being conducted by the Test and Evaluation Branch of the Emission Control Technology Division.

The purpose of this document is to provide a general reference to available data, an overview of specifics in current programs, and a projection of upcoming projects. This information is intended to assist potential "customers" of the programs in their identification of possible areas of interface, spin-offs or piggyback efforts.

These programs involve emission testing of large numbers of in-use trucks, motorcycles and passenger cars at various locations throughout the country. These activities are conducted through contracts with independent testing laboratories. EPA uses this information to calculate Emission Factors which are in turn used by state and local officials to project air quality and evaluate various pollution control strategies. Other uses include EPA Certification, Enforcement, and evaluation of Inspection/Maintenance Programs. As an outgrowth of these large programs, a number of "Task Order" contracts are also maintained with the same companies. These provide EPA with standby capabilities in areas related to emission testing which can be used as needed to immediately address unforeseen problems or to conveniently expand the major efforts.

The Emission Factor programs and Task Orders described herein are designed, executed, and monitored from EPA's Motor Vehicle Emission Laboratory, 2565 Plymouth Road, Ann Arbor, MI 48105. Following is a list of persons who may be contacted for further information:

Name	Telephone
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Emission Factor Test Program

Background

In conjunction with the advent and development of Federal Motor Vehicle Emission Standards, EPA has conducted a number of programs to assess the contribution of the in-use vehicles to atmospheric pollution. Through the administration of several large-scale programs, average emission levels for the entire nation can be statistically determined. Programs are now being conducted to quantify emissions from in-use passenger cars. A number of Task Order and Work Effort contracts are utilized to provide immediate response to various needs within the Emission Control Technology Division. Other information is used to support in-house efforts for evaluation of Inspection/Maintenance strategies, as a screen for vehicle models subject to possible recall actions and as input to a modified and updated certification process.

Basic Program Design

Each of the Emission Factor Testing Programs is designed to solicit vehicles from the general public using a modest incentive package. To ensure adequate representation, the contractors are provided a vehicle matrix which specifies the model year, make, and basic configuration of each vehicle to be tested. This matrix is generally based on estimates of "vehicle miles traveled" and national vehicle sales. The model year mix has been skewed toward the later model years in the current programs to obtain and test vehicles early in their useful life.

In addition to a range of emission results, each of these programs routinely gathers a significant amount of owner information on driving and maintenance habits as well as perceptions of driveability and fuel economy. A reasonably thorough underhood inspection is also conducted on the emission control system of each vehicle. This inspection is designed to determine if there are any maladjusted, disabled, or defective emission-related components.

As a requirement of the contract, all information gathered in the program is well documented. Even though the results transmitted on data tapes are extensive, a thorough review of all inputs can be obtained from the underlying data packet. Once the data has passed all phases of contractor and EPA review, they are stored in computer files to allow ready access.

Past Emission Factor Programs

Year	Program Title	No. of Vehicles	Types of Vehicles	Test Sites	Test Procedures	Total Costs
FY68	Rental Vehicle Surveillance Program	705	1968 and 1969 automobiles	Los Angeles Detroit	7 x 7 FTP	In-house
FY69	The Great Plains Surveillance Program	2029	1968 and 1969 light-duty	Houston Kansas City	7 x 7 FTP	$327,426
FY70	The National Surveillance Program - Phase I	2101	1970 light-duty	Houston Kansas City Los Angeles Detroit Denver Washington	7 x 7 FTP	Below
FY70	The National Surveillance Program - Phase II	369	1971 light-duty	Houston Los Angeles Detroit Denver	7 x 7 FTP	$584,500 (both phases)
FY70	A Surveillance Study of Smoke from Heavy-Duty Diesel- Powered Vehicles - Southwestern USA	64	1970 and 1971 heavy-duty trucks & buses	San Antonio	Chassis dynamometer adaptation of 1970 FTP	$144,608
FY70	A Surveillance Study of Emissions from Heavy-Duty Gasoline-Powered Vehicles - Southwestern USA	145	1970-1972	San Antonio	Chassis dynamometer version of FTP over-the-road testing	$493,415
FY71	A Study of Emission from Light-Duty Vehicles in Six Cities, FY71	1020	1957-1971	Chicago St. Louis Denver Washington Los Angeles Houston	1972/1975 CVS FTP, Evaporative Emissions Modal Emissions	$425,000
FY72	A Study of Emissions from Light-Duty Vehicles in Six Cities, FY72	1020	1966-1972	Chicago St. Louis Denver Washington Los Angeles Houston	1972/1975 CVS FTP, Evaporative Emissions	$335,582
FY72	A Study of Emissions from Heavy-Duty Vehicles	32	1965-1975	San Antonio	Chassis dynamometer testing to obtain exhaust emissions	$150,000
FY73	A Study of Emissions from Light-Duty Vehicles in Six Cities, FY73	1080	1967-1974	Detroit St. Louis Denver Newark Los Angeles Houston	1972/1975 CVS FTP, Modal Emissions Evaporative Emissions Loaded Vehicle Tests Air Conditioning Tests Aldehydes and Light HC Sound Level Tests I/M Correlation Tests	$472,285
FY73	Acquisition of Diesel Truck Operational Parameters and Emissions (Co-Sponsored with ECTD)	10	1970-1973	San Antonio	Chassis dynamometer version of 1970 FTP over-the-road testing	$77,574
FY73	Mass Emissions from Pre-controlled Heavy-Duty Gasoline-Powered Vehicles	10	1965-1969	San Antonio	Chassis dynamometer version of 1970 FTP over-the-road testing	$59,189

Year	Program Title	No. of Vehicles	Types of Vehicles	Test Sites	Test Procedures	Total Costs
FY74	A Study of Emissions from LDV in 7-Cities, FY74	2522	1965-1975	Chicago St. Louis Houston Denver Los Angeles Washington Phoenix	Chassis dynamometer 1975 CVS FTP, HFET, Modal, CKN High Speed Cycle, Low Speed Cycle Loaded Vehicle Tests, Light Hydrocarbon and Aldehyde tests.	$1,519,000
FY75	A Study of Emissions from LDV in 7 Cities FY75	2188	1966-1976	Chicago St. Louis Houston Denver Los Angeles Washington Phoenix	Chassis dynamometer 1975 CVS FTP, HFET, Evap., Modal, Short Cycles, Sulfate Emissions, Diesel Emissions and R/M in Chicago, Washington, D.C. and Detroit	$1,855,702
FY75	Restorative Maintenance	300	1975-1976	Detroit Chicago Washington	Chassis dynamometer 1975 CVS FTP,HFET,Short Cycles - Maintenance	$550,000
FY75	A Study of Exhaust Emissions from Motorcycles	150	1977-1978	Los Angeles	Chassis dynamometer 1975 CVS FTP, HFET, Evap., Short Cycles	$246,000
FY77	Restorative Maintenance	100	1975-1976	San Francisco	Chassis dynamometer CVS FTP, Short Cycles - Maintenance	$200,000
FY77	A Study of Emissions from LDV in 6 Cities FY77	2028	1972-1978	Chicago St. Louis Houston Denver Washington Phoenix	Chassis dynamometer 1975 CVS FTP,HFET,Evap.,Short Cycles, Diesel Emissions,RN and Cold Tests in Chicago	$1,401,313
FY77	A Study of Emissions from LDV in Los Angeles	250	1975-1979	Los Angeles	Chassis dynamometer 1975 CVS FTP, Short Cycles, RN	$236,000
FY78	A Study of Emissions from LDT in 4 Cities	1495	1975-1979	St. Louis Phoenix Los Angeles Denver	Chassis dynamometer 1975 CVS FTP, HFET, Short Cycles at major site. Short Cycles at minor sites.	$1,178,000
FY79	A Study of Emissions from LDV in 6 Cities	2042	1978-1980	Phoenix Denver Houston Los Angeles St. Louis Washington D.C.	Chassis dynamometer 1975 CVS FTP, HFET, Evap., Short Cycles, RN	$1,932,764
FY79	A Study of Emissions from LDV Equipped with Three Way Catalysts in Los Angeles	350	1978-1980	Los Angeles	Chassis dynamometer 1975 CVS FTP, HFET, Short Cycles	$420,890

Emission Factor Contracts
Currently in Force as of 9/80

Contractor No.	Type	Contractor	Approx. Cost	Man Hours	Effective Date	End of Contract
68-03-2774	PC-EFIP	ATL	1,932,000	65000	1/18/79	9/01/80
68-03-2891	Task Order	ATL (Denver)	200,000	7280	9/27/79	9/27/80
68-03-2871	Task Order	AESI (LA)	100,000	3280	9/27/79	9/27/80
68-03-2881	Task Order	AESI (LA)	240,000	7280	9/27/79	9/27/80
68-03-2783	Work Effort	CARB (LA)	200,000	6400	9/30/79	9/30/80
	Totals		$2,672,000	89240		

Description of Features in Current Major Efforts

"A Study of Emissions from Passenger Cars in Los Angeles, Denver and San Antonio" (Project Officer - Tom Bejma)

As a continuation of past emission factor programs, the award of contracts for this work are scheduled for September, 1980. A total of 900 passenger cars of the 1977 - 1981 model years will be tested. This program will place a heavy emphasis on 1981 model year vehicles. Each vehicle will receive and FTP and HFET. Evaporative (SHED) emissions will be performed on 125 vehicles in Los Angeles and Denver. Short Cycles will be performed to evaluate emissions under non-FTP conditions. Each vehicle will undergo and inspection of its emission-related components. Restorative Maintenance will be performed on 50 vehicles at each site.

Projected Efforts

"Task Order Contracts" (Project Officer - Tom Bejma)

A task order contract is projected for the Detroit - Ann Arbor area. This contract should be available for use in January 1981.

Status of Current Projects (as of 9/01/90)

Title	Description	Contractor/ Location	Test Order No., Contract No.	Project Officer Branch Tech. Rep.	Status	Results To Date	Upcoming Milestones
Testing of New Technology 3-Way Catalyst equipped vehicles in Los Angeles	As received FTP, HFET and Short Cycle tests on 116 1979 & 1980 passenger cars. Twenty five will receive SHED and EM.	AESI	Task order #1 68-03-3881	T. Tupaj	Testing complete	Preliminary data-received	Draft final report being reviewed
Effect of Acceleration rate on emission control	6 vehicles will undergo a series of accel. rates greater than those experienced during the FTP	CARB/LA	Work Effort #4 68-03-2783	T. Tupaj	Testing has not started	None	Testing will be done 11/90
Effect of Altitude Maladjusted vehicles	Low altitude baseline testing of gasoline powered vehicles followed by high altitude testing in different common maladjusted conditions	ATL	Task order #2 68-03-3891	T. Tupaj	Testing is now at high alt.	Data from low alt. received	Testing will be complete 10/90
Effectiveness of South Coast Air Basin Change-of- ownership I/M program	Randomly Procured vehicles which fail a four speed idle test or an underhood inspection are submitted to the state I/M inspection lanes and commercial repair facilities	AESI	Task order #2 68-03-3871	T. Tupaj	Program has just begun	None	Testing will be complete 10/90
Effectiveness of South Coast Air Basin Change-of-ownership I/M program	Randomly Procured vehicles which fail a four speed idle test or an underhood inspection are submitted to the state I/M inspection lanes and commercial repair facilities	AESI	Task order #2 68-03-3881	T. Tupaj	Program has just begun	None	Testing will be complete 10/90

Appendix A

Emission Factors Testing Programs

Cross-Reference of Available Information

by Type of Vehicle as of 9/1/80

Vehicle Type	Test Type	Test Program	Vehicle Model Years	Number of Vehicles	Comments	Report #
Gasoline Passenger Cars	FTP (1975 unless noted)	FY79 EF	1975-1980	2040	Six cities	EPA 460/3-80-020
		3-Way	1978-1980	350	as received tests in Los Angeles	EPA 460/3-80-006 & SAE no. 800823
		3-Way	1979-1980	116	in Los Angeles	Contractor report in progress
		3-Way	1978-1980	200	In Los Angeles, 51 received RM	EPA 460/3-80-020 & SAE no. 800823
		Misfueling	1977-1980	27	in LA, St. Louis & Ohio. Includes Poisioning and rejuvenation	EPA-AA-TEB-81-4
		FY77 PC	1975-1979	250	In Los Angeles, 48 received RM	EPA 460/3-79-004
		FY77 EF	1972-1978	2028	Six sites	EPA 460/3-78-001
		Restorative Maintenance	1977	60	in Detroit and Los Angeles	no EPA report--internal (CAB) report
		Restorative Maintenance	1977	42	in Denver. 21 were RM 21 were control cars	EPA 460/3-78-006

Emission Factors Testing Programs

Cross-Reference of Available Information

by Type of Vehicle as of 9/1/80

Vehicle Type	Test Type	Test Program	Vehicle Model Years	Number of Vehicles	Comments	Report #
Gasoline Passenger	FTP	RM Retest	1977	24	in Denver. All from previous RM test. 12 test cars, 12 control (same as before)	TAEB-79-3
		RM Retest	1977	6	in Detroit. All from previous RM test	TAEB-79-5
		Restorative Maintenance	1975-1976	100	in San Francisco	EPA 460/3-76-003
		Restorative Maintenance	1975-1976	300	in Chicago, Washington D.C., and Detroit	EPA 460/3-77-021 & SAE No. 780082
		RM Retest	1975-1976	21	in Detroit. All from previous RM test	TAEB 79-5
		RM Retest	1975-1976	13	in Detroit. All from previous RM test	TAEB 79-5
		Gasohol Cars	1973-1978	10	gasoline mixed with 10%, 20% ethanol, 10% mehtanol-in Denver	TAEB 79-1
		MMT Cars	1975-1976	4	all with 50,000 miles, with catalyst replacement	SCI Task Report, contract no. 68-03-2411
		FY75 EF	1966-1976	2188	all sites	EPA 460/3-77-022
		FY74 EF	1965-1976	2522	all vehicles	EPA 460/3-76-019
		FY73	1967-1974	1080	all vehicles	EPA 460/3-75-007
		FY72	1966-1972	1020	run with both 1972 and 1975 FTP	EPA 460/2-74-001
		FY71	1957-1971	1020	Run using 7-mode test	APTD-1544

Emission Factors Testing Programs

Cross-Reference of Available Information

by Type of Vehicle as of 9/1/80

Vehicle Type	Test Type	Test Program	Vehicle Model Years	Number of Vehicles	Comments	Report #
Gasoline Passenger Cars	HFET	FY79 EF	1975-1980	2040	six cities	EPA 460/3-80-020
		3-Way	1978-1980	350	as received tests in Los Angeles	EPA 460/3-80-006 & SAE No. 800823
		3-Way	1978-1980	200	in Los Angeles, 51 received RM	EPA 460/3-80-020 & SAE no. 800823
		3-Way	1979-1980	116	in Los Angeles	contractor report in progress
		FY77 EF	1975-1978	1360	six cities	EPA 460/3 78-011
		Restorative Maintenance	1977	60	in Detroit and Los Angeles	no EPA report--internal (CAB) report
		Restorative Maintenance	1977	42	in Denver. 21 were RM, 21 were control cars	EPA 460/3-78-006
		RM Retest	1977	24	in Denver. All from previous RM Test 12 test cars, 12 control (same as before)	TAEB 79-5
		RM Retest		6	in Detroit. All from previous RM Test	TAEB 79-5
		Restorative Maintenance	1975-1976	100	in San Francisco	EPA 460/3-76-003
		Restorative Maintenance	1975-1976	300	in Chicago, Washington D.C. and Detroit	EPA 460/3-77-021
		RM Retest	1975-1976	21	in Detroit. All from previous RM test	TAEB 79-5
		RM Retest	1975-1976	13	in Detroit. All from previous RM test	TAEB 79-5
		Gasohol Cars	1973-1978	10	gasoline mixed with 10%, 20% ethanol, 10% methanol— in Denver	TAEB 79-1
		MMT Cars	1975-1976	4	all with 50,000 miles, with catalyst replacement	SCI Task Report, contract no.68-03-2411
		FY75 EF	1976	204	all sites	EPA 460/3-77-022
		FY74 EF	1975	245	some in all sites	EPA 460/3-76-019
		FY73 EF	1967-1974	360	Denver and Detroit only	EPA 460/3-74-015

Emission Factors Testing Programs

Cross-Reference of Available Information

by Type of Vehicle as of 9/1/80

Vehicle Type	Test Type	Test Program	Vehicle Model Years	Number of Vehicles	Comments	Report #
Gasoline Passenger Cars	Short tests (Federal short NY/NJ, Clayton key-mode two-speed,idle, Federal three mode, Loaded two mode)	FY79-EF	1975-1980	2040	Six cities	EPA 460/3-80-020
		3-Way	1978-1980	350	In Los Angeles - no NY/NJ, Clayton Key Mode	EPA 460/3-80-006
		FY77-PC	1975-1979	250	in Los Angeles-65 Clayton key mode, no loaded two	EPA 460/3-79-004
		Misfueling	1977-1980	27	in Los Angeles-Federal 3-mode 2 speed Idle, Federal Short Test	EPA-AA-TEB-81-4
		FY77 EF	1972-1977	1143	Los Angeles, Denver,Chicago St. Louis, No Clayton Key mode of NY/NJ	EPA 460/3-78-011
		FY 75 EF	1966-1976	400	Also revised Federal Three-Mode	EPA 460/3-77-022
		Restorative Maintenance	1975-1976	300	Chicago, Washington D.C., Detroit	EPA 460/3-77-021
		3-Way	1979-1980	116	in Los Angeles; four speed idle, 50 mph cruise, bagged idle, and loaded two mode	contractor report in progress

Emission Factors Testing Programs

Cross-Reference of Available Information

by Type of Vehicle as of 9/1/80

Vehicle Type	Test Type	Test Program	Vehicle Model Years	Number of Vehicles	Comments	Report #
Gasoline Passenger cars	Short tests	FY77 EF	1975-1977	25	Short test correlation, with maintenance	Internal (CAB) report
		Restorative Maintenance	1975-1976	100	San Francisco	EPA 460/3-76-003
	Modal Tests	FY75 EF	1970-1976	672	some in all cities	EPA 460/3-77-022
		FY74 EF	1965-1975	245	Some	EPA 460/3-76-019
		FY73	1972-1974	75	Some	EPA 460/3-75-007
	Methane and Light Hydro-carbon	FY77 EF	1972-1977	1095	Phoenix, St. Louis	EPA 460/3-78-011
		FY74 EF	1975	70	Some 1975's, Washington D.C. & Los Angeles Only	EPA 460/3-76-002 (D.C.) EPA 460/3-76-003 (LA)
	Evaporative	3-Way	1979-1980	25	in Los Angeles	contractor report in progress
		FY77 EF	1977-1978	116	Some, in some cities	EPA 460/3-78-011
		FY75 EF	1966-1976	40	SHED tests	EPA 460/3-77-022
		FY71 EF	1957-1971	145	SHED tests 125 in Los Angeles, 20 in Denver	APTP-1497
		FY73 EF	1973	40	Tested using SHED and canister 20 in Los Angeles, 20 in Denver	EPA 460/3-75-007
	Aldehyde	FY74 EF	1975	70	Washington, D.C. & Los Angeles only	EPA 460/3-76-002 (D.C.) EPA 460/3 76-003 (LA)

Emission Factors Testing Programs

Cross-Reference of Available Information

by Type of Vehicle as of 9/1/80

Vehicle Type	Test Type	Test Program	Vehicle Model Years	Number of Vehicles	Comments	Report #
Gasoline Passenger Cars	Sulfate	FY75 EF	1975-1976	275	In Denver, Phoenix, St. Louis, and Houston	EPA 460/3-77-022
	Loaded Modal	FY74 EF	1974-1975	12	Standard Modal test in Houston and Phoenix	EPA 460/3-76-019
		FY73 EF	1967-1973	42	in Detroit	EPA 460/3-75-007
	Sound Level	FY73 EF	1967-1973	85	WOT and EPA 5-mode test -- in San Antonio	EPA 460/3-75-007
	Air Conditioning	FY73 EF	1967-1974	40	Some years in Detroit and Houston --hot start over 1972 FTP	EPA 460/3-75-007
	Cold Test	FY77 EF	1972-1978	84	in Chicago	EPA 460/3-78-011
Diesel Passenger Cars	FTP	In-House	1978	20	Detroit Area-High Mileage	EPA-AA-TEB 80-11
		FY77 EF	1965-1976	20	Phoenix	EPA 460/3-78-011
		FY75 EF	1965-1976	20	Phoenix	EPA 460/3-77-005
	HFET	FY77 EF	1965-1976	20	Phoenix	EPA 460/3-78-011
		FY75 EF	1965-1976	20	Phoenix	EPA 460/3-77-005
		In-House	1978	20	Detroit area only, 50 Cruise, 4-sd idle & loaded two mode	EPA-AA-TEB-80-11
	Short tests	FY77 EF	1965-1976	20	Phoenix	EPA 460/3-78-001
	Modal	FY75 EF	1965-1976	20	Phoenix	EPA 460/3-77-005
Light Duty Trucks	FTP	FY78	1975-1979	370	in St. Louis (Major site)	EPA 460/3-80-008
		FY75 EF	1975-1979	98		EPA 460/3-77-022
		Dial-a-ride	1976-1977	10	test of vans modified for commercial passenter service	EPA 460/3-78-004
		FY74 EF	1975	70	at all sites	EPA 460/3-76-019
		FY73 EF	1967-1974	25	trucks tested as passenger cars with correct engine size	EPA 460/3-75-007

Emission Factors Testing Programs

Cross-Reference of Available Information

by Type of Vehicle as of 9/1/80

Vehicle Type	Test Type	Test Program	Vehicle Model Years	Number of Vehicles	Comments	Report #
Light Duty Trucks	HFET	FY78	1975-1979	370	in St. Louis (major site)	EPA 460/3-80-008
		FY75 EF	1976	57	all 1976 MY trucks	EPA 460/3-77-022
		FY74 EF	1975	70	all 1975 MY trucks	EPA 460/3-76-019
	Short Tests	FY78	1978-1979	1495	in St. Louis - Federal Short Cycle, 2-Speed Idle, Federal 3-Mode	EPA 460/3-80-008
					in Denver, Phoenix and Los Angeles - Federal 3-Mode, 2-Speed Idle	
		FY75 EF	1975-1976	98	all in program	EPA 460/3-77-022
	Modal tests	FY78	1975-1979	166	in St. Louis	EPA 460/3-80-008
		FY74 EF	1975	3	Modal Test with varying loads in Houston and Phoenix	EPA 460/3-76-019
	Sulfate tests	FY75 EF	1975-1976	21	Some in Denver, Houston and St. Louis	EPA 460/3-77-022
	Particulates	FY77 EF			in progress	
	Modal Tests	FY75 EF	1975-1976	77	Some	EPA 460/3-77-022
		Dial-a-ride	1976-1977	10	Vans modified for commercial passenger use	EPA 460/3-78-004
		FY74 EF	1975	70	all 1975 MY trucks	EPA 460/3-76-019
	Light Hydro-carbon & Aldehydes	FY74 EF	1975	20	10 in Washington D.C., 10 in Los Angeles	EPA 460/3-76-019
Gasoline Heavy Duty Trucks	Road tests		1966-1969	10	Run with on-board CVS over San Antonio Road Route	EPA 460/3-75-004
			1970-1972	25	Run with on-board CVS over SARR	EPA 460/3-73-002
	Chassis Dyno Tests		1966-1969	10	Run on chassis-dyno adaptation of 9-mode (1970-73 FTP) tests same vehicles as SARR test	EPA 460/3-75-004
			1970-1972	25	Run on chassis-dyno adaptation of 9-mode test, same vehicles	EPA 460/3-73-002A

Emission Factors Testing Programs

Cross-Reference of Available Information

by Type of Vehicle as of 9/1/80

Vehicle Type	Test Type	Test Program	Vehicle Model Years	Number of Vehicles	Comments	Report #
Gasoline Heavy Duty Trucks	Chassis Dyno Tests		1970-1971	152	Run on chassis dyno adaption of 9-mode test	EPA 460/3-73-002B
	Road Tests		1970-1973	10	Run with on-board CVS over SARR	EPA 460/3-74-017
Diesel Heavy Duty Trucks	Chassis Dyno Tests		1970-1973	10	Run on chassis dyno adaption of 13-mode 1974 FTP for HDV-same as SARR vehicles	EPA 460/3-74-017
			1969-1970	64	Run on ARB 13-mode chassis dyno test	EPA 460/3-74-003
	Smoke Test		1969-1970	64	Run on chassis dyno adaption of 1970 Federal Smoke test forengine dyno, same as 1969-1970 emission test vehicles	EPA 460/3-74-003
Motorcycles	FTP	FY75	1977-1978	150	in Los Angeles	EPA 460/3-79-002
	HFET	FY75	1977-1978	150	in Los Angeles	EPA 460/3-79-002
	Modal	FY75	1977-1978	150	in Los Angeles	EPA 460/3-79-002
	Short tests	FY75	1977-1978	150	in Los Angeles	EPA 460/3-79-002
Mopeds	Modal		1971-1977	10	Steady-state and accel-decel modes	AESi task report, contract no. 68-03-2413
6000-8500 lbs. GVW Trucks	FTP	FY75	1975-1977	125	in Washington D.C.	no report available
	HFET	FY75	1975-1977	125	in Washington D.C.	
	Short Tests	FY75	1975-1977	125	in Washington D.C.	
	Modal	FY75	1975-1977	125	in Washington D.C.	

Appendix B

Emission Factors Testing Programs

Cross-Reference of Available Information

by Type of Test as of 9/1/80

Test Type	Vehicle Type	Test Program	Vehicle Model Years	Number of Vehicles	Comments	Report #
Modal	Gasoline Passenger Cars	FY75 EF	1970-1976	672	Some in all cities	EPA 460/4-77-022
		FY74 EF	1965-1975	245	Some cities	EPA 460/3-76-019
		FY73 EF	1972-1974	75	Some cities	EPA 460/3-75-007
	Diesel Passenger Cars	FY75 EF	1965-1976	20	Phoenix	EPA 460/3-77-005
	Light Duty Truck	FY78 EF	1975-1979	166	St. Louis	EPA 460/3-80-008
		FY75 EF	1975-1976	77	Some in some cities	EPA 460/3-77-022
		FY74 EF	1975	70		EPA 460/3-76-019
	6000-85000 lbs. GVW trucks	FY75	1975-1977	125	Washington D.C.	No report, data available
	Mopeds		1971-1977	10	steady-state and accel-decel modes	AESi task report, contract
Short tests (Fed. Short NY,NJ, Clayton key mode, Two Speed Idle, Fed.3-Mode loaded two mode	Gasoline Passenger Cars	FY79	1975-1980	2040	Six cities-in progress	
		3-Way	1978-1980	350	in Los Angeles-No NY/NJ, no Clayton key-mode, no Fed.short cycle	EPA 460/3-80-006
		FY77 PC	1975-1979	250	in Los Angeles-65 Clayton key-mode no loaded two node	EPA 460/3-79-004
		Misfueling	1977-1980	27	in Los Angeles- no NY/NJ, no Clayton key mode, no Fed short cycle	EPA-AA-TEB-81-4
		FY77 EF	1972-1977	1524	LA, Den., Chi., St.L.,--no key-mode or NY/NJ	
		Restorative Maintenance	1975-1976	100	San Francisco, no loaded two mode	EPA 460/3-76-033
		FY75 EF	1966-1976	400	Also Revised Federal 3-Mode	EPA 460/3-77-022
		Restorative Maintenance	1975-1976	300	Chicago, Washington D.C., Detroit, no loaded two mode	EPA 460/77-02i
	Diesel Passenger Cars	In-House	1978	20	Detroit Area, 50 cruise, 4-speed idle, loaded two mode	EPA-AA-TAEB-80-11
		FY77 EF	1965-1976	20	Phoenix	EPA 460/3-78-011

Emission Factors Testing Programs

Cross-Reference of Available Information

by Type of Test as of 9/1/80

Test Type	Vehicle Type	Test Program	Vehicle Model Years	Number of Vehicles	Comments	Report #
Short tests	Light Duty Trucks	FY78 EF	1975-1979	1295	in St. Louis-Federal Short Cycle, 2-Speed idle, Federal 3-Mode	EPA 460/3-80-008
		FY75 EF	1975-1976	98	in Denver, Phoenix and Los Angeles-Federal 3-Mode, 2-speed idle	EPA 460/3 77-022
	6000-8500 lbs. GVW Trucks	FY75	1975-1977	125	Washington D.C.	No report
Methane and Light Hydro carbons and Aldehydes	Gasoline Passenger Cars	FY77 EF	1972-1977	1095	Los Angeles, Phoenix, St. Louis	EPA 460/3-78-011
		FY74 EF	1975	70	Some 1975's, Washington D.C. and Los Angeles only	EPA 460/3-76-002 (D.C.)
	Light Duty Trucks	FY74 EF	1975	20		EPA 460/3-76-003 (LA)
						EPA 460/3-76-019
Evaporative	Gasoline Passenger Cars	FY79 EF	1975-1980	200	100 each in Denver & St. Louis	EPA 460/3-80-020
		FY77 EF	1977-1978	116	Some in some cities	EPA 460/3-78-001
		FY75 EF	1966-1976	40	SHED tests	EPA 460/3-77-022
		FY71 EF	1957-1971	145	SHED-125 in L.A., 20 in Denver (APTD-1497)	
		FY73 EF	1973	40	SHED and cannister tests--20 in in Los Angeles, 20 in Denver	EPA 460/3-75-007
	Light Duty Trucks	FY78 EF	1975-1979	100	St. Louis	EPA 460/3-80-008
	Motorcycles	FY75	1977-1978	238	SHED in Los Angeles	EPA 460/3-79-002

Emission Factors Testing Programs
Cross-Reference of Available Information
by Type of Test as of 9/1/80

Test Type	Vehicle Type	Test Program	Vehicle Model Years	Number of Vehicles	Comments	Report #
Sulfate	Gasoline Passenger Cars	FY75 EF	1975-1976	275		EPA 460/3-77-022
	Light Duty Trucks	FY75 EF	1975-1976	21		EPA 460/3-77-022
	Gasoline Passenger Cars	FY77 EF	1977-1978	50	in Los Angeles	EPA 460/3-78-011
Loaded Modal	Gasoline Passenger Cars	FY74 EF	1974-1975	12		EPA 460/3-76-010
	Light Duty Trucks	FY73 EF FY74 EF	1975	42 3	Some years, in Detroit	EPA 460/3-75-007 EPA 460/3-76-019
Sound Level	Gasoline Passenger Cars	FY73 EF	1967-1973	85	WOT and EPA 5-mode test, in San Antonio	EPA 460/3 75-007
Cold test	Gasoline Passenger Cars	FY77 EF	1972-1977	150	Chicago recently completed	
Air condition	Gasoline Passenger cars	FY73 EF	1967-1974	40	Detroit and Houston, Hot Start 1972 FTP	EPA 460/3-75-007
Road Test	Heavy Duty Trucks (Gasoline)		1966-1969	10	Run with on-board CVS and SARR	EPA 460/3-75-004
	Heavy Duty Trucks (Diesel)		1970-1972 1970-1973	25 10	Run with on-board CVS and SARR Run with on-board CVS and SARR	EPA 460/3-73-002A EPA 460/3-74-017
Smoke Test	Heavy Duty Truck (Diesel)		1969-1970	64	Run on chassis dyno adaptation of 1970 Federal Smoke Test for engine dyno	

Emission Factors Testing Programs
Cross-Reference of Available Information
by Type of Test as of 9/1/80

Test Type	Vehicle Type	Test Program	Vehicle Model Years	Number of Vehicles	Comments	Report #
Restorative Maintenance or Post-Maint.	Gasoline Passenger Cars	FY79	1975-1980	300	About 50 in each site	EPA 460/3-80-020
		FY77 EF Restorative Maintenance	1975-1978	350	About 50 in each site	EPA 460/3-78-011
		Restorative Maintenance	1975-1976	100	in San Franscio	EPA 460/3-76-033
		Restorative Maintenance	1975-1976	300	in Washington D.C., Chicago &Detroit	EPA 460/3-77-021
		Restorative Maintenance	1977	42	in Denver	EPA 460/3-78-006
		Restorative Maintenance	1977	60	in Detroit and Los Angeles	internal (CAB) report
		RM Retest	1977	30	24 in Denver, 6 in Detroit	TAEB-79-3 (Denver)
		RM Retest	1976	21	in Detroit, 13 retested secono time	TAEB 79-5
		Gasohol Test	1973-1978	10	gasoline mixed with varying amounts of alcohol	TAEB-79-1
		MMT Cars	1975-1976	4	all with 50,000 miles with catalyst replacement	SCI Task Report, contract no. 68-03-2411
		Short Test Correlation	1975-1977	25	Short test correlation with maintenance	internal (TAEB) report

Emission Factor Group Publications

Emission Factor Programs (Light-Duty Vehicles)

Publication Number	Title	Dated	Contract Number	Author
AP-91	Rental Vehicle Surveillance Program - March 1968 to January 1970	11/71		
	Study of Automobile Exhaust Emissions in Consumer-Owned Vehicles, National Surveillance Program, 1970 Model Vehicles	8/72	EHS 70-105	OLI
	Study of Automobile Exhaust Emissions in Consumer-Owned Vehicles, National Surveillance Program, 1971 Model Vehicles	8/72	EHS 70-105	OLI
	Study of Automobile Exhaust Emissions in Consumer-Owned Vehicles, Great Plains Surveillance Program	9/72	CPA 22-69-159	OLI
APTD-1497	A Study of Emissions from Light Duty Vehicles in Six Cities	3/73	68-04-0042	ARSI
APTD-1544	Automobile Exhaust Emission Surveillance - A Summary	5/73	68-01-0435	Calspan
SAE 730530	Contribution of the Vehicle Population to Atmospheric Pollution	5/73		ARSI
APTD-1506	A Study of Emissions from 1966-72 Light-Duty Vehicles in Washington, D.C.	7/73	68-01-0434	CEC
APTD-1504	A Study of Emissions from Light-Duty Vehicles in Denver, Houston, and Chicago	7/73	68-01-0435	ATL
APTD-1505	A Study of Emissions from 1966-72 Light-Duty Vehicles in Los Angeles and St. Louis	8/72	68-01-0436	ARSI
EPA-460/2-74-001	Automobile Exhaust Emission Surveillance-Analysis of the FY72 Program	2/74		EPA
SAE 741005	Exhaust Emissions From 1966-1972 Light-Duty Motor Vehicles	10/74		H. Williams et al.
EPA-460/3-74-014	A Study of Emission from 1967-1974 Light-Duty Vehicles in Newark, New Jersey	10/74	68-03-0389	CEC
EPA-460/3-74-013	A Study of Emissions from 1967-1974 Light-Duty Vehicles in Denver, Houston, and Detroit	10/74	68-03-0388	ATL
EPA-460/3-74-016	A Study of Emissions from 1967-1974 Light-Duty Vehicles in Los Angeles and St. Louis	10/74	68-03-0390	ARSI
EPA-460/3-75-007	Automobile Exhaust Emission Surveillance-Analysis of the FY73 Program	7/75	68-03-0446	Calspan
EPA-460/3-76-001	Study of Exhaust Emissions from 1965-1975 Model Year Light-Duty Vehicles in Houston, Chicago, and Phoenix	4/76	68-03-2183	ATL
EPA-460/3-76-002	Study of Exhaust Emissions from 1972, 1974, and 1975 Model Year Light-Duty Vehicles in Washington, D.C.	4/76	68-03-2185	CEC
EPA-460/3-76-003	Study of Exhaust Emissions from 1965-1975 Model Year Light-Duty Vehicles in St. Louis, and Los Angeles	4/76	68-03-2184	OLI
EPA-460/3-76-019	Automobile Exhaust Emission Surveillance-Analysis of the FY74 Program	9/76	68-03-2384	Dayton
EPA-460/3-77-004	Study of Emissions from 1966-1976 Model Year Vehicles in Los Angeles, St. Louis, and Washington, D.C.	8/77	68-03-2379	OLI
EPA-460/3-77-005	Study of Exhaust Emissions from 1966-1976 Model Year Light-Duty Vehicles in Denver, Chicago, Houston, and Phoenix	6/77	68-03-2378	ATL
EPA-460/3-77-022	Automobile Exhaust Emission Surveillance-Analysis of the FY73 Program	12/77		J. Rutherford
EPA-460/3/76-030	Evaluation of Restorative Maintenance on 1973 and 1976 Light-Duty Vehicles in Chicago, Illinois	1/77	68-03-2378 Mod. #1	ATL

Appendix C

Publication Number	Title	Dated	Contract Number	Author
EPA-460/3-76-031	Evaluation of Restorative Maintenance on 1975 and 1976 Light-Duty Vehicles in Washington, D.C.	3/77	68-03-2185	CEC
EPA-460/3-76-032	Evaluation of Restorative Maintenance on 1975 and 1976 Light-Duty Vehicles in Detroit, MI	5/77	68-03-2379 Mod #2	OLI
EPA-460/3/76-033	Evaluation of Restorative Maintenance on 1975 and 1976 Light-Duty Vehicles in San Francisco, CA	10/77	68-03-2349	AESi
EPA-460/3-77-021	An Evaluation of Restorative Maintenance on Exhaust Emissions of 1975-1976 Model Year In-Use Vehicles	12/77	68-03-2386	Calspan
SAE 780082	An Evaluation of Restorative Maintenance on Exhaust Emissions from In-Use Automobiles	2/78		J. White
EPA-460/3-77-018	Evaluation of Potential Inspection/Maintenance Benefits on Vehicles Operated at High Altitude	9/77	68-03-2384	Dayton
EPA-460/3-78-001	Colorado Motor Vehicle Emission Inspection-A Pilot Program	3/78	68-03-2593 Mod #1	ATL
Task Report	Evaluation of the Effects of MMT Fuel Additive on Catalytic Converter Efficiency	10/78	68-03-2411 Task Order #7	SCI
EPA-460/3-78-006	Evaluation of Restorative Maintenance on 1977 Light-Duty Vehicles in Denver, Colorado	1/78	68-03-2408 Task Order #2	ATL
Task Report	Evaluation of Emissions from Motorized Bicycles	3/78	68-03-2413 Task Order #4	AESi
79-1	Exhaust Emissions and Fuel Economy From Automobiles Using Alcohol/Gasoline Blends Under High-Altitude Conditions	10/78	68-03-2612 Task Order #5	D. Richardson
79-2	Evaluation of a Proposed Colorado State Inspection/Maintenance Program	11/78	68-03-2593 Mod. #1	T. Bejma
78-3	Effects of Low Ambient Temperature on the Exhaust Emissions and Fuel Economy of 84 Automobiles in Chicago	10/78	68-03-2593	W. Heinmiller
78-4	An Evaluation of Restorative Maintenance on Exhaust Emissions from 1975/1976 In-Use Automobiles in California	10/78	68-03-2439	P. Farrell
79-3	Restorative Maintenance Retesting of 1977 Model Year Passenger Cars in Denver	11/78	68-03-2359 Mod. #8	G. Jones
79-5	Evaluation of Restorative Maintenance of Passenger Cars in Detroit	2/79	68-03-2735 Work Effort #1	G. Jones
EPA-460/3-78-011-a EPA-460/3-78-011-b	A Study of Emissions from Passenger Cars in Six Cites	1/79	68-03-2593	ATL
EPA-460/3-79-002	A Study of Exhaust Emissions from 1977-1978 Model Year Motorcycles	5/79	68-03-2374	AESi
79-10	Evaluation of Restorative Maintenance and Catalyst Replacement on Exhaust Emissions from Eight Very High Mileage Passenger Cars in St. Louis	6/79	68-03-2413 Task Order #13	G. Jones
EPA-460/3-79-004	A Study of Exhaust Emissions from 1975-1979 Model Year Passenger Cars in Los Angeles	7/79	68-03-2590	AESi
EPA-460/3-80-006	A Study of Exhaust Emissions from 1978-1980 Model Year Three Way Catalyst Vehicles in Los Angeles	3/80	68-03-2889	AESi
EPA-AA-TEB-80-11	Exhaust Emissions from Twenty High Mileage Oldsmobile Diesel Passenger Cars	3/80		J. White/G. Jones
EPA-460/3-80-008	A Study of Emissions from 1975-1976 Light-Duty Trucks	3/80	68-03-2739	ATL
SAE 800823	Exhaust Emissions from In-Use Passenger Cars Equipped with Three-Way Catalysts	6/80		J. White/G. Jones/ D. Niemczak
EPA-AA-TEB-80-17	Effectiveness of Idle Adjustment on Light-Duty Trucks at Commercial Repair Facilities	6/80	68-03-2739	J. Shelton

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Publication Number	Title	Dated	Contract Number	Author
EPA-AA-TEB-80-20	Exhaust Emissions from Twenty Light-Duty Diesel Trucks	8/80	68-03-2739	J. Shelton
EPA 460/3-80-020	FY79 Study of Emissions from Passenger Cars in Six Cities	9/80	68-03-2774	ATL
EPA-AA-TEB-80-23	Testing of Five Diesel-Powered Passenger Cars at High and Low Altitude	9/80	68-03-2891	T. Tupaj
EPA-AA-TEB-81-04	An Overview of EPA Misfueling Test Programs	10/80	----------	T. Tupaj

(HEAVY DUTY)

Publication Number	Title	Dated	Contract Number	Author
EPA-460/3-73-002A	In-Use Heavy-Duty Gasoline Truck Emissions Part I - Mass Emissions from Trucks Operated Over a Road Course	2/73	EHS 70-113	SwRI
EPA-460/3-73-002B	In-Use Heavy-Duty Gasoline Truck Emissions, Part II, Surveillance Study of Control Equipped Heavy-Duty Gasoline-Powered Vehicles	6/74	EHS 70-113	SwRI
EPA-460/3-75-004	Mass Emissions from Ten Pre-Controlled Gasoline Trucks, and Comparisons Between Different Trucks on a Road Course	4/75	68-03-0441	SwRI
EPA-460/3-74-003	A Surveillance Study of Smoke from Heavy-Duty Diesel-Powered Vehicles - Southwestern USA	6/73	EHS 70-109	SwRI
EPA-460/3-74-017	Mass Emissions from Diesel Trucks Operated Over a Road Course	8/74	68-01-2113	SwRI
SAE 74106	Emissions from In-Use 1970-1971 Diesel-Powered Trucks and Buses	10/74	EHS 70-109	SwRI
EPA-460/3-75-004	Exhaust Emissions from Trucks Tested on a Road Course	10/75	68-03-0441	SwRI
EPA-460/3-76-012	A Study of Emissions from Heavy-Duty Vehicles	5/76	68-03-2147	SwRI